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ECONOMIC INTELLIGENCE COMMITTEE
Subcommittee on Petroleum

MILITARY CONSUMPTION OF PETROLEUM PRODUCTS

SINO-SOVIET BLOC
1950-1955

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[redacted]

EIC-PSC-WP 1

(Limited Distribution)

1 April 1956

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Economic Intelligence Committee

Subcommittee on Petroleum

Report

EIC-P-10

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FOREWORD

This report provides estimates of the consumption of petroleum products by the military and paramilitary Services of the countries of the Sino-Soviet Bloc for the years 1950 through 1955.

The report was prepared under the sponsorship of the Economic Intelligence Committee Subcommittee on Petroleum to meet a designated research deficiency. It is intended that the report serve members of the intelligence community in petroleum supply/demand studies for countries of the Sino-Soviet Bloc.

The limitations of this first joint research effort on the part of the Subcommittee on Petroleum are recognized. However, the report is considered a useful instrument in its present form and can serve as the object of further refinement as better information becomes available.

INTRODUCTION

The estimates included in this report were developed independently by the appropriate intelligence authorities of the US Departments of Army, Navy, and Air Forces. The particular responsibilities for the preparation of consumption estimates for similar consumers in the Bloc follow:

Army - Appendix A. Sino-Soviet Bloc ground forces; militarized security forces (MVD).

Navy - Appendix B. Sino-Soviet Bloc naval forces ashore and afloat.

Air Force - Appendix C. Sino-Soviet Bloc air forces; naval air forces; civil aviation; ferrying operations; aircraft engine testing.

Since consumption data, per se, was not available, the estimates represent calculations based on consideration of the probable numbers and types of equipment, estimated use thereof, and the petroleum product consumption per unit time or distance.

THE ESTIMATES

The estimates of consumption of petroleum products by the Army, Navy, and Air Forces of the countries of the Sino-Soviet Bloc for the years 1950 through 1955 are summarized in Table 1. Military consumption by product and by location of forces is summarized in Table 2.

The supporting data and methodology for Tables 1 and 2 are included in the appropriate appendixes.

Table 1
Estimated Annual Consumption of Petroleum Products Sino-Soviet Bloc Military Forces

Thousand Metric Tons

Consumer a/ b/	USSR c/	Albania	Bulgaria	Czecho.	E. Germ.	Hungary	Poland	Rumania	China c/	North Korea	North Vietnam	Total
1950												
Ground Forces	748.9	5.8	22.0	28.9	6.0	9.3	45.5	31.9	20.6	15.6	0	934.5
Naval Forces	1544.6	1.5	10.1	0	3.0	0	30.2	17.7	91.8	5.1	0	1704.0
Air Forces	1330.6	0	7.5	21.8	0	6.1	17.0	14.8	13.6	0	0	1411.4
Total	3624.1	7.3	39.6	50.7	9.0	15.4	92.7	64.4	126.0	20.7	0	4049.9
1951												
Ground Forces	748.9	6.1	31.1	34.7	7.7	18.1	48.3	34.3	45.2	20.8	.8	996.0
Naval Forces	1716.5	1.5	10.1	0	7.2	0	24.3	17.7	129.4	5.3	0	1912.0
Air Forces	1690.4	0	21.3	29.3	0	11.6	30.0	18.5	112.8	0	0	1913.9
Total	4155.8	7.6	62.5	64.0	14.9	29.7	102.6	70.5	287.4	26.1	.8	4821.9
1952												
Ground Forces	748.9	6.5	35.0	41.1	8.5	28.7	53.2	35.7	55.4	22.5	1.2	1036.7
Naval Forces	2168.8	1.5	10.1	0	13.7	0	35.3	25.0	190.8	5.5	0	2450.7
Air Forces	2223.4	.2	26.8	35.0	0	17.9	34.4	20.1	151.5	0	0	2509.3
Total	5141.1	8.2	71.9	76.1	22.2	46.6	122.9	80.8	397.7	28.0	1.2	5996.7
1953												
Ground Forces	748.9	6.6	38.9	44.2	23.0	31.8	53.2	44.1	68.4	22.6	2.4	1084.1
Naval Forces	2383.9	1.5	10.3	0	14.8	0	35.4	25.5	230.3	5.9	0	2707.6
Air Forces	3105.3	.4	38.3	70.2	1.4	31.3	75.9	30.9	221.2	36.1	0	3611.0
Total	6238.1	8.5	87.5	144.4	39.2	63.1	164.5	100.5	519.9	64.6	2.4	7402.7
1954												
Ground Forces	813.7	6.9	38.9	47.4	25.1	32.9	55.1	45.2	78.0	27.3	4.8	1175.3
Naval Forces	2677.7	1.5	10.3	0	29.3	0	35.6	25.5	262.2	5.9	0	3048.0
Air Forces	3591.8	.2	40.3	92.8	2.4	44.1	97.5	38.5	219.6	41.5	0	4168.7
Total	7083.2	8.6	89.5	140.2	56.8	77.0	188.2	109.2	559.8	74.7	4.8	8392.0
1955												
Ground Forces	813.7	7.1	37.6	52.2	29.5	35.2	57.0	46.5	100.6	32.6	6.9	1218.9
Naval Forces	2934.8	1.5	10.3	0	33.6	0	39.8	26.1	294.4	5.9	0	3346.4
Air Forces	4003.7	.4	44.5	105.0	2.4	44.7	103.7	41.2	236.8	46.7	0	4629.1
Total	7752.2	9.0	92.4	157.2	65.5	79.9	200.5	113.8	631.8	85.2	6.9	9194.4

a. Quantities shown for USSR Ground Forces includes consumption by militarized security forces.
b. Quantities shown for Air Forces includes consumption by Civil Aviation.
c. See Appendices for quantities consumed by national forces outside national boundaries.

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Table 2

Estimated Annual Consumption of Petroleum Products
Sino-Soviet Bloc Military Forces
(Thousand Metric Tons)

Year	Consuming Forces a/	Aviation Gasoline b/	Motor Gasoline	Jet Fuel c/	Diesel Fuel	Fuel Oil	Lubricants d/	Total
1950								
	USSR	948.4	782.0	277.4	771.9	755.7	88.7	3624.1
	Albania	0	6.0	0	1.0	0	.3	7.3
	Bulgaria	6.6	21.4	0	2.7	7.6	1.3	39.6
	Czechoslovakia	19.8	26.3	0	2.9	0	1.7	50.7
	East Germany	0	5.2	0	3.4	0	.4	9.0
	Hungary	5.3	8.9	0	.7	0	.5	15.4
	Poland	14.7	43.0	0	25.3	5.8	3.9	92.7
	Rumania	13.3	31.4	0	1.1	16.6	2.0	64.4
	China	12.8	20.4	0	52.2	37.9	2.7	126.0
	North Korea	0	13.7	0	6.1	0	.9	20.7
	North Vietnam	0	0	0	0	0	0	0
	Total	1020.9	958.3	277.4	867.3	823.6	102.4	4049.9
1951								
	USSR	1030.7	782.2	552.4	818.8	878.6	93.1	4155.8
	Albania	0	6.3	0	1.0	0	.3	7.6
	Bulgaria	17.7	30.7	1.1	3.4	7.6	2.0	62.5
	Czechoslovakia	23.7	31.8	3.0	3.4	0	2.1	64.0
	East Germany	0	6.8	0	7.6	0	.5	14.9
	Hungary	10.0	17.3	0	1.4	0	1.0	29.7
	Poland	22.0	47.4	4.3	25.7	0	3.2	102.6
	Rumania	15.1	33.8	1.6	1.3	16.6	2.1	70.5
	China	31.4	47.9	74.2	80.9	48.1	4.9	287.4
	North Korea	0	18.9	0	6.1	0	1.1	26.1
	North Vietnam	0	.8	0	0	0	0	.8
	Total	1150.6	1023.9	636.6	949.6	950.9	110.3	4821.9

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Table 2

Estimated Annual Consumption of Petroleum Products
Sino-Soviet Bloc Military Forces
(Thousand Metric Tons)

Year	Consuming Forces a/	Aviation Gasoline b/	Motor Gasoline	Jet Fuel c/	Diesel Fuel	Fuel Oil	Lubricants d/	Total
1952	USSR	1142.0	788.7	965.5	837.6	1306.5	100.8	5141.1
	Albania	.2	6.7	0	.9	0	.4	8.2
	Bulgaria	14.7	35.0	8.9	3.6	7.6	2.1	71.9
	Czechoslovakia	21.8	37.6	10.6	3.7	0	2.4	76.1
	East Germany	0	7.7	0	13.8	0	.7	22.2
	Hungary	11.1	27.1	5.1	1.7	0	1.6	46.6
	Poland	20.5	51.5	10.2	26.4	10.8	3.5	122.9
	Rumania	10.3	35.3	7.6	1.6	23.8	2.2	80.8
	China	47.9	59.6	94.9	104.8	83.7	6.8	397.7
	North Korea	0	19.1	0	7.7	0	1.2	28.0
	North Vietnam	0	1.1	0	0	0	.1	1.2
	Total	1268.5	1069.4	1102.8	1001.8	1432.4	121.8	5996.7
1953								
	USSR	1216.9	796.7	1763.4	871.2	1484.1	105.8	6238.1
	Albania	.2	6.9	0	1.0	0	.4	8.5
	Bulgaria	17.5	38.6	17.7	3.7	7.6	2.4	87.5
	Czechoslovakia	25.6	41.0	41.1	4.1	0	2.6	114.4
	East Germany	1.2	21.2	0	15.4	0	1.4	39.2
	Hungary	11.8	29.9	17.7	1.9	0	1.8	63.1
	Poland	26.5	52.7	44.2	26.6	10.8	3.7	164.5
	Rumania	12.4	43.1	16.3	1.7	24.3	2.7	100.5
	China	53.2	73.8	157.3	122.9	104.5	8.2	519.9
	North Korea	1.0	20.5	33.9	7.9	0	1.3	64.6
	North Vietnam	0	2.3	0	0	0	.1	2.4
	Total	1366.3	1126.7	2091.6	1056.4	1631.3	130.4	7402.7

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Table 2

Estimated Annual Consumption of Petroleum Products
Sino-Soviet Bloc Military Forces
(Thousand Metric Tons)

Year	Consuming Forces a/	Aviation Gasoline b/	Motor Gasoline	Jet Fuel c/	Diesel Fuel	Fuel Oil	Lubricants d/	Total
1954								
	USSR	1194.3	836.5	2271.2	1015.1	1650.7	115.4	7083.2
	Albania	.2	7.0	0	1.0	0	.4	8.6
	Bulgaria	19.1	39.0	17.7	3.7	7.6	2.4	89.5
	Czechoslovakia	26.1	44.2	62.8	4.3	0	2.8	140.2
	East Germany	1.9	23.4	0	29.7	0	1.8	56.8
	Hungary	12.4	31.3	29.5	2.0	0	1.8	77.0
	Poland	27.1	54.6	64.8	27.0	10.8	3.9	188.2
	Rumania	12.6	44.3	23.6	1.7	24.3	2.7	109.2
	China	52.2	83.7	156.1	141.5	117.2	9.1	559.8
	North Korea	4.3	25.9	35.4	7.5	0	1.6	74.7
	North Vietnam	0	4.6	0	0	0	.2	4.8
	Total	1350.2	1194.5	2661.1	1233.5	1810.6	142.1	8392.0
1955								
	USSR	1199.9	836.7	2679.5	1197.5	1719.1	119.5	7752.2
	Albania	.2	7.4	0	1.0	0	.4	9.0
	Bulgaria	19.1	37.6	22.1	3.7	7.5	2.4	92.4
	Czechoslovakia	26.8	48.9	73.7	4.7	0	3.1	157.2
	East Germany	1.9	27.4	0	34.1	0	2.1	65.5
	Hungary	12.9	33.3	29.5	2.2	0	2.0	79.9
	Poland	39.4	56.5	58.8	27.3	14.6	3.9	200.5
	Rumania	13.2	45.4	25.8	1.7	24.8	2.9	113.8
	China	55.6	103.3	169.6	155.8	136.8	10.7	631.8
	North Korea	4.9	31.0	39.8	7.5	0	2.0	85.2
	North Vietnam	0	6.6	0	0	0	.3	6.9
	Total	1373.9	1234.1	3098.8	1435.5	1902.8	149.3	9194.4

a. Includes USSR and Communist China forces outside national boundaries.
b. Reciprocating engine aircraft fuels, grades 100, 95, and less than 95.
c. Jet engine aircraft fuels, grades T-1 and 100 TS-1.
d. Lubricating oils, greases, etc.

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Appendix A

GROUND FORCES*

1. Soviet and European Satellites.

A. Assumptions.

(1) Soviet Army units were at authorized Table of Organization and Equipment (TO/E) strengths in tanks, self-propelled (SP) guns, and other vehicles during 1950-53.

(2) Petroleum product consumption by Satellite army units is comparable to Soviet rates of consumption, except that units are at less than vehicle strengths authorized in TO/Es.

(3) Petroleum products are consumed at the same rates by all vehicles of a particular type. For example, the consumption rate for the same truck used for transport is the same in all units.

(4) All tractors in Soviet and Satellite units burn diesel fuel (although a few may burn gasoline).

(5) The vehicle strength of the militarized security forces of the MVD was assumed. However, vehicle strength for Border Troops was estimated on the basis of available information.

(6) All vehicles in the militarized security forces were considered as transport vehicles and were allocated gasoline for 7,200 miles of operation annually, except that 25 percent of the vehicles of the Interior Troops were assumed to be transport vehicles and the balance of the Interior Troops' vehicles were considered as other than transport and were allocated 2,100 miles of operation annually.

(7) The relationahip between petroleum products consumed by the Army forces and the schools supporting such forces is the same in all countries.

B. Methodology.

(1) Estimates of petroleum product consumption by the Soviet Army have been divided into two periods: 1950-53 and 1954-55. In the first period, the organization of the Soviet forces was static, being based on the reorganization that took place in 1947. It is believed that annual petroleum product consumption during the period did not vary substantially during 1950-53. The second period takes into account the major organizational changes which began in 1954 and which increased substantially the number of wheeled and tracked vehicles. The petroleum product consumption during 1954-55 reflects only divisional changes -- there having been no evidence of non-divisional reorganization.

(2) Annual gasoline consumption by the Soviet Army was calculated on the basis of the estimated total number of gasoline burning vehicles

* The estimates of consumption for Ground Forces represent the best available information as of December 1955.

in divisional and non-divisional units, military schools, and depot installations. In all instances, vehicles were divided into "transport" and "other" vehicles. "Transport" vehicles were allocated gasoline for 7,200 miles annually, and "other" vehicles were allocated 2,100 miles. Such mileages were obtained from current Soviet documents and reports.

(3) The fragmentary information available on Soviet tank and SP gun training indicates that most of the armor assigned to troops is kept in storage. Analysis of all available information led to the belief that about 10 percent of the armor in units was used throughout the year for training and that another 10 percent was added from the tank park during summer training in the field. The remaining 80 percent would therefore be used for short-term maneuvers and for movement to and from railroad stations. The following rates of operation were used:

10 percent, year-round training	400 hours
10 percent, summer training	50 hours
80 percent, maneuver training	25 hours

These rates were applied to the approximate 30,000 tanks and SP guns assigned to Soviet troops. No allowance was made for armor which was in permanent storage and, therefore, not assigned to troops. Fuel consumption for tractors and tank retrievers was calculated on the same basis as for tanks except that mileages were used instead of hours of operation. These vehicles were allotted fuel on the basis of 800 miles for 10 percent used in year-round training; 400 miles for an additional 10 percent used in summer training; and 200 miles for 80 percent used in maneuver training.

(4) Since the beginning of 1954, there has been substantial evidence of organizational changes in many Soviet Army units. The extent of these changes is, as yet, not completely known but the evidence is sufficient to warrant an increase in the annual consumption of petroleum products estimated for the period 1950-53. Based on the general indications noted to date, it is believed that the 1954-55 consumption may be developed by increasing the 1950-53 totals by the following quantities:

Gasoline	30,000 metric tons
Diesel Fuel	30,000 metric tons
Lubricants	4,800 metric tons

(5) Gasoline consumption by the Soviet militarized security forces of the MVD was calculated on the basis of 7,200 miles annually for "transport" vehicles and 2,100 miles for "other" vehicles. Gasoline consumption by the comparable troops in the Satellite countries was calculated on the basis of one truck per 20 men in the such security forces. Each truck was allocated 6,000 miles per year. Consumption for the different years was calculated on the basis of personnel strengths of the security forces of each country for each year. The Soviet militarized security forces were allocated 1,500 tons of diesel fuel annually on the basis of reported artillery and tanks in certain MVD units.

(6) Petroleum product consumption for the European Satellite armies was based on estimated vehicle strengths of each army. Vehicle strengths in Satellite units were estimated to be 85 percent of similar Soviet units in 1954. A calculation was made of the consumption in 1954 and percentage factors were applied to reflect the vehicle strength of Satellite armies for other years in order to develop consumption estimates for these years.

(7) Available intelligence does not permit the development of estimates of petroleum products which may be consumed in space heating, lighting, cleaning, construction work by the military forces for the civil economy, or for other miscellaneous uses.

C. Validity of the estimates.

Since, it was necessary to use several estimated factors and assumptions, the estimates should be considered approximations and subject to considerable margin of error.

D. The estimates.

The consumption estimates for the Soviet and European Satellite ground forces are shown in Tables A-1, A-2, A-3, and A-4.

2. Communist China and the Asiatic Satellites.

A. Assumptions.

(1) Vehicle consumption per day in gallons is assumed as follows:

	Trucks	Self Propelled Guns	Tanks
North Korea	4.2 3.6 (1955)	6.9	8.4
Communist Chinese in Korea	4.2 3.6 (1955)	6.9	8.4
Communist Chinese in China	1.25	2.0	2.0 Heavy 1.0 Light
Viet Minh	3.75	-	-

Trucks operating in Korea are assumed to travel 1,000 miles per month (850 in 1955); in Communist China, 300; and in Viet Minh, 900. These consumption rates allow for a vehicle deadline factor of about one-third. Consumption rates are higher in Korea and North Viet Nam than in Communist China because of greater consumption during combat operations, and, since the armistice, by greater utilization of vehicles; vehicle operation in Communist China is believed to be sharply restricted.

B. Methodology.

The estimated number of vehicles for each year was based on an analyses of TO/E authorizations, reports of the numbers of vehicles on hand, and imports. The number of vehicles was multiplied by the daily

consumption factor. The quantities so developed were multiplied by 365 to obtain a yearly figure.

C. Validity of the estimates.

The estimates of the numbers of vehicles used in the computation are fairly reliable, but the assumed consumption factors are subject to a considerable margin of error. However, the consumption factors do not seem inconsistent with available data on U.S. Army peacetime consumption in Korea which indicated an average of six gallons per vehicle per day. Nevertheless, the lack of information on actual consumption and the use of assumed consumption factors suggests a substantial margin of error.

D. The estimates.

The consumption estimates for Communist China and Asiatic Satellite ground forces are shown in Table A-5.

Table A-1

Estimated annual consumption of petroleum products
Soviet Army
(Metric tons)

Year	Location of units a/	Motor gasoline	Diesel fuel	Lubricants	Total
1950 through 1953	USSR	463,019	62,722	34,049	559,790
	Austria	7,034	952	518	8,504
	East Germany	93,776	12,703	6,896	113,375
	Hungary	5,861	794	431	7,086
	Poland	8,205	1,112	603	9,920
	Rumania	8,205	1,112	603	9,920
	Total	586,100	79,395	43,100	708,595
1954 through 1955	USSR	486,719	86,422	37,862	611,003
	Austria	7,394	1,312	574	9,280
	East Germany	98,576	17,503	7,648	123,727
	Hungary	6,161	1,094	478	7,733
	Poland	8,625	1,532	669	10,826
	Rumania	8,625	1,532	669	10,826
	Total	616,100	109,395	47,900	773,395

a/ Geographical location of Soviet Army units.

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Table A-2

Estimated Annual Consumption of Petroleum Products
Soviet Army, 1950 through 1953 a/
(Metric Tons)

Line Divisions	Motor Gasoline: Transport Vehicles	Motor Gasoline: Other Vehicles	Motor Gasoline: Consumption b/	Consumption c/	Consumption Total
105 Rifle	32,445	77,910	81,110	62,330	143,440
45 Mecz	19,485	61,470	48,715	49,175	97,890
20 Tank	8,560	22,580	21,400	18,065	39,465
5 Cavalry	500	0	1,250	0	1,250
Sub-total	60,990	161,960	152,475	129,570	282,045
Non-Divisional					
Corps Troops	4,815	17,820	12,040	14,260	26,300
Army Troops	18,585	51,390	46,465	41,110	87,575
GHQ Troops	31,500	60,160	78,750	48,130	190,180
Miscellaneous d/					63,000
Sub-total	54,900	129,370	137,255	103,500	304,055
Total	115,890	291,330	289,730	223,070	586,100

Line Divisions	Diesel Fuel: Medium Tanks and SP Guns	Diesel Fuel: Heavy Tanks and SP Guns	Diesel Fuel: Tank Retrievers Tractors	
105 Rifle	7,140	0	2,940	16,980
45 Mecz	10,215	2,925	1,485	34,930
20 Tank	5,460	1,300	700	16,600
Sub-total	22,815	4,225	5,125	68,510
Non-Divisional				
Corps Troops	210	0	1,080	1,200
Army Troops	500	790	1,650	4,640
GHQ Troops	1,475	400	1,520	5,045
Sub-total	2,185	1,190	4,250	10,885
Total	25,000	5,415	9,375	79,395

	Lubricants
Lubricants for gasoline engine driven vehicles e/	35,160
Lubricants for diesel engine driven vehicles f/	7,940
Total	43,100
GRAND TOTAL	708,595

a. The consumption for 1954 and 1955 is estimated on the basis of an increase of Gasoline 30,000 tons, Diesel fuel 30,000 tons, Lubricants 4,800 tons applied to the estimates for the years 1950 through 1955. (See paragraph 1, b, 4, Appendix A.) The consumption estimates for 1954 and 1955 are, therefore, gasoline 586,100 plus 30,000 or 616,100; diesel fuel 79,395 plus 30,000 or 109,395; lubricants 43,100 plus 4,800 or 47,900.
b. Calculated at 7,200 miles per vehicle per year.
c. Calculated at 2,100 miles per vehicle per year.
d. Radar, motor boats, and outboard motors.
e. Calculated at 6% of gasoline weight.
f. Calculated at 10% of diesel fuel weight.

Table A-3

Estimated annual consumption of petroleum products
Soviet Militarized Security Forces of the MVD
(Metric tons)

Year	Type of Unit	Trucks	Consumption			
			Motor gasoline	Diesel fuel	Lubricants	Total
1950 through 1955	USSR					
	Border troops	3,500	9,000	1,500	690	11,190
	Interior troops	20,000	23,000	0	1,380	24,380
	Convoy troops	1,000	2,500	0	150	2,650
	Signal troops	800	2,000	0	120	2,120
	Total	25,300	36,500	1,500	2,340	40,340

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Table A-4

Estimated annual consumption of petroleum products
European Satellite ground forces
(Metric tons)

Year	Location of Units	Motor gasoline	Diesel fuel	Lubricants	Total
1950	Albania	5,480	80	280	5,840
	Bulgaria	19,940	1,020	1,050	22,010
	Czechoslovakia	24,800	2,710	1,370	28,880
	East Germany	5,090	625	290	6,005
	Hungary	8,270	620	440	9,330
	Poland	40,290	2,150	3,030	45,470
	Rumania	29,370	1,000	1,520	31,890
	Total	133,240	8,205	7,980	149,425
1951	Albania	5,690	80	290	6,060
	Bulgaria	28,040	1,530	1,480	31,050
	Czechoslovakia	29,820	3,200	1,650	34,670
	East Germany	6,540	810	360	7,710
	Hungary	15,990	1,260	860	18,110
	Poland	43,550	2,460	2,300	48,310
	Rumania	31,530	1,130	1,640	34,300
	Total	161,160	10,470	8,580	180,210
1952	Albania	6,090	90	310	6,490
	Bulgaria	31,695	1,610	1,670	34,975
	Czechoslovakia	35,625	3,490	1,950	41,065
	East Germany	7,210	900	410	8,520
	Hungary	25,850	1,510	1,360	28,720
	Poland	47,585	3,130	2,530	53,245
	Rumania	32,640	1,310	1,700	35,650
	Total	186,695	12,040	9,930	208,665

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Table A-4

Estimated annual consumption of petroleum products
European Satellite ground forces
(Metric tons)

Year	Location of Units	Motor gasoline	Diesel fuel	Lubricants	Total
1953	Albania	6,240	90	315	6,645
	Bulgaria	35,340	1,700	1,855	38,895
	Czechoslovakia	38,430	3,670	2,110	44,210
	East Germany	20,210	1,700	1,095	23,005
	Hungary	28,570	1,700	1,515	31,785
	Poland	47,560	3,130	2,535	53,225
	Rumania	40,535	1,410	2,145	44,090
	Total	216,885	13,400	11,570	241,855
1954	Albania	6,470	100	330	6,900
	Bulgaria	35,340	1,695	1,855	38,890
	Czechoslovakia	41,260	3,865	2,225	47,350
	East Germany	22,160	1,785	1,190	25,135
	Hungary	29,580	1,785	1,565	32,930
	Poland	49,190	3,300	2,625	55,115
	Rumania	41,620	1,410	2,145	45,175
	Total	225,620	13,940	11,935	251,495
1955	Albania	6,685	105	340	7,130
	Bulgaria	34,070	1,695	1,790	37,555
	Czechoslovakia	45,430	4,240	2,485	52,155
	East Germany	26,160	1,980	1,405	29,545
	Hungary	31,585	1,980	1,680	35,245
	Poland	50,855	3,470	2,715	57,040
	Rumania	42,745	1,485	2,310	46,540
	Total	237,530	14,955	12,725	265,210

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Table A-5
Estimated annual consumption of petroleum products

Communist China and Asiatic Satellite ground forces
(Metric tons)

Year	Location of units	Motor gasoline	Diesel fuel	Lubricants	Total
1950	Chinese Communist forces in China	12,525	620	655	13,800
	Chinese Communist forces in Korea	6,475	0	325	6,800
	North Korea	13,000	1,800	750	15,550
	North Vietnam	0	0	0	0
	Total	32,000	2,420	1,730	36,150
1951	Chinese Communist forces in China	21,575	375	1,040	22,990
	Chinese Communist forces in Korea	19,425	1,725	1,060	22,210
	North Korea	18,000	1,800	980	20,780
	North Vietnam	760	0	40	800
	Total	59,760	3,900	3,120	66,780
1952	Chinese Communist forces in China	16,450	405	910	17,765
	Chinese Communist forces in Korea	34,550	1,295	1,790	37,635
	North Korea	18,000	3,400	1,080	22,480
	North Vietnam	1,100	0	60	1,160
	Total	70,100	5,100	3,840	79,040

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Table A-5
Estimated annual consumption of petroleum products

Communist China and Asiatic Satellite ground forces
(Metric tons)

Year	Location of units	Motor gasoline	Diesel fuel	Lubricants	Total
1953	Chinese Communist forces in China	24,725	375	1,510	26,610
	Chinese Communist forces in Korea	38,275	1,725	1,790	41,790
	North Korea	18,000	3,500	1,090	22,590
	North Vietnam	2,300	0	120	2,420
	Total	83,300	5,600	4,510	93,410
1954	Chinese Communist forces in China	24,470	575	1,700	26,745
	Chinese Communist forces in Korea	47,530	1,725	2,000	51,255
	North Korea	23,000	3,000	1,300	27,300
	North Vietnam	4,600	0	230	4,830
	Total	99,600	5,300	5,230	110,130
1955	Chinese Communist forces in China	41,435	1,665	2,165	45,265
	Chinese Communist forces in Korea	49,565	3,135	2,635	55,335
	North Korea	28,000	3,000	1,600	32,600
	North Vietnam	6,600	0	330	6,930
	Total	125,600	7,800	6,730	140,130

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Appendix B

NAVAL FORCES*

1. Sino-Soviet Bloc Naval Forces.

A. Methodology.

These estimates, taken from ONI 18-1A (15 June 1955) and changes thereto, were developed by the following method:

(1) Order of Battle was taken from Strength and Disposition of Foreign Navies (ONI-30-S/D) as revised for each year.

(2) An operational schedule (number of days at sea, in port and in shipyards) of each vessel type was developed on the basis of the best available intelligence, filled in and expanded by the use of USN experience.

(3) Fuel consumption for each vessel type for each day at sea, in port and in yards was estimated on the basis of the most comparable USN type, modified as required.

(4) The fuel consumed per vessel per year was estimated using data developed in steps 2 and 3 and multiplied by the number of vessels of that type on 1 July of each year to give annual consumption per type.

(5) Annual consumption of all vessels in each type was totaled to give total consumption for the naval forces afloat.

(6) Consumption of Naval Forces ashore is estimated on the basis of a per man requirement. The result is considered as all gasoline, although a small, probably insignificant, part of this total would be kerosene and diesel.

(7) Requirements for lubricants are estimated at 1 percent for fuel oil data, 2 percent for deisel oil data and 5 percent for gasoline data.

(8) These estimates include units attached to para-military organizations.

B. The estimates.

The consumption estimates for Bloc naval forces are shown in Tables B-1 and B-2.

* The estimates of consumption for Naval Forces represent the best available information a s of November 1955. Naval Air Forces consumption is included with Air Forces in Appendix C.

Table B-1

Estimated annual consumption of petroleum products
Soviet Bloc naval forces
(Metric tons)

Year	Location of Units	Motor gasoline		Diesel fuel	Fuel oil	Lubricants		Total
		ashore	afloat	afloat	afloat	ashore	afloat	
1950	USSR	72,818	8,930	681,239	755,727	3,832	22,005	1,544,551
	Albania	61	531	858	0	3	45	1,498
	Bulgaria	230	551	1,645	7,552	12	138	10,128
	East Germany	122	0	2,790	0	6	56	2,974
	Poland	684	228	22,911	5,817	36	537	30,213
	Rumania	692	190	0	16,622	36	177	17,717
	Total	74,607	10,430	709,443	785,718	3,925	22,958	1,607,081
1951	USSR	72,818	9,167	727,883	878,550	3,832	24,210	1,716,460
	Albania	61	531	858	0	3	45	1,498
	Bulgaria	230	551	1,645	7,552	12	138	10,128
	East Germany	243	0	6,796	0	13	138	7,190
	Poland	684	228	22,911	0	36	479	24,338
	Rumania	692	190	0	16,622	36	177	17,717
	Total	74,728	10,667	760,093	902,724	3,932	25,187	1,777,331
1952	USSR	72,818	11,162	745,554	1,306,460	3,832	28,998	2,168,824
	Albania	61	531	858	0	3	45	1,498
	Bulgaria	230	551	1,645	7,552	12	138	10,128
	East Germany	485	0	12,919	0	26	263	13,693
	Poland	684	228	22,911	10,804	36	588	35,251
	Rumania	692	190	0	23,849	36	250	25,017
	Total	74,970	12,662	783,887	1,348,665	3,945	30,282	2,254,411

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Table B-1

Estimated annual consumption of petroleum products
Soviet Bloc naval forces
(Metric tons)

Year	Location of Units	Motor gasoline ashore	Motor gasoline afloat	Diesel fuel afloat	Fuel oil afloat	Lubricants ashore	Lubricants afloat	Total
1953	USSR	72,818	13,015	778,498	1,484,136	3,832	31,563	2,383,862
	Albania	61	531	858	0	3	45	1,498
	Bulgaria	437	551	1,645	7,552	23	138	10,346
	East Germany	851	0	13,650	0	45	278	14,824
	Poland	867	228	22,911	10,804	46	588	35,444
	Rumania	692	190	0	24,318	36	255	25,491
	Total	75,726	14,515	817,562	1,526,810	3,985	32,867	2,471,465
1954	USSR	79,857	15,276	891,960	1,650,682	4,203	35,680	2,677,658
	Albania	61	531	858	0	3	45	1,498
	Bulgaria	437	551	1,645	7,552	23	138	10,346
	East Germany	851	0	27,841	0	45	568	29,305
	Poland	867	228	23,053	10,804	46	591	35,589
	Rumania	692	190	0	24,318	36	255	25,491
	Total	82,765	16,776	945,357	1,693,356	4,356	37,277	2,779,887
1955	USSR	80,273	17,337	1,074,673	1,719,122	4,225	39,208	2,934,838
	Albania	61	531	858	0	3	45	1,498
	Bulgaria	437	551	1,645	7,552	23	138	10,346
	East Germany	910	0	32,034	0	48	653	33,645
	Poland	1,112	228	23,197	14,598	58	632	39,825
	Rumania	801	190	0	24,789	42	260	26,082
	Total	83,594	18,837	1,132,407	1,766,061	4,399	40,936	3,046,234

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Table B-2

Estimated annual consumption of petroleum products
Communist China and Asiatic Satellite naval forces
(Metric tons)

Year	Location of Units	Motor gasoline ashore	Motor gasoline afloat	Diesel fuel afloat	Fuel oil afloat	Lubricants ashore	Lubricants afloat	Total
1950	China	728	137	51,545	37,869	38	1,440	91,757
	North Korea	582	114	4,292	0	31	93	5,112
	Total	1,310	251	55,837	37,869	69	1,533	96,869
1951	China	1,214	137	77,799	48,131	64	2,080	129,425
	North Korea	728	114	4,292	0	38	93	5,265
	Total	1,942	251	82,091	48,131	102	2,173	134,690
1952	China	1,455	703	101,979	83,688	45	2,963	190,833
	North Korea	971	114	4,292	0	51	93	5,521
	Total	2,426	817	106,271	83,688	96	3,056	196,354
1953	China	1,699	760	119,678	104,502	89	3,537	230,265
	North Korea	1,214	228	4,292	0	64	99	5,897
	Total	2,913	988	123,970	104,502	153	3,636	236,162
1954	China	1,942	950	137,963	117,159	102	4,048	262,164
	North Korea	1,214	228	4,292	0	64	99	5,897
	Total	3,156	1,178	142,255	117,159	166	4,147	268,061
1955	China	2,185	1,064	149,758	136,817	115	4,494	294,433
	North Korea	1,214	228	4,292	0	64	99	5,897
	Total	3,399	1,292	154,050	136,817	179	4,593	300,330

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Appendix C

AIR FORCES*

1. Sino-Soviet Bloc Air Forces.

A. Assumptions and methodology.

(1) Aircraft fuels and lubricants.

(a) Aircraft in operating regiments -- The air order of battle for aircraft of each Satellite country, Soviet forces in each Satellite country, and the USSR, for the years 1950-1955, was established. Since Soviet aircraft strengths are normally stated as TO/E strengths, the percentage of TO/E for each type regiment, was used to determine actual aircraft strength. Flying time per aircraft was based on the estimated pilot time per year for each type regiment. A factor for the ratio of aircraft to pilots was determined in order to get actual aircraft times per year. A handling factor loss of 3.04 percent for aviation fuel, and 3.57 percent for aviation lubricating oil was used. Oil consumption factors used are 1.62 percent of fuel consumed for piston engines, and 1.63 percent of fuel consumed for jet engines.

(b) Aircraft in training establishments -- Aircraft assigned to the military training establishment and para-military organizations were determined for each year. Flying hours per aircraft in these training schools, as estimated in AIS 2-18, "The Logistical System of Soviet Military Aviation, USSR," were used in determining the consumption for all training aircraft.

(c) Aircraft in civil aviation -- Civil aircraft include those assigned Civil Air Fleet, Polar Aviation, the Ministries of Aviation Industry and Internal Affairs; and civil training schools. Monthly flying hours for aircraft in the Civil Air Fleet, as shown in AIS 2-6, "Soviet Bloc Civil Aviation," were used to determine consumption.

(d) Aircraft testing -- A time factor for engine run-in and aviation industry testing, prior to turning aircraft over to the military, was established. The time factor was based primarily on US factors, and on limited intelligence of Soviet practices.

(2) Diesel fuel and motor gasoline.

(a) Vehicle equipment assigned to aircraft regiments as listed in AIS 2-18, was used to determine motor gas and diesel fuel consumption. Assumptions were based on an estimated number of miles per day that each vehicle would travel. An estimate was made for the petroleum products consumed by the motor vehicles assigned to the training schools.

* The estimates of consumption for Air Forces represent the best available information as of June 1955.

(3) Kerosene and fuel oil.

(a) The requirements for heating and lighting are considered to be insignificant in comparison to other petroleum product requirements. No estimates have been made for kerosene and fuel oil used for this purpose.

B. The estimates.

The consumption estimates for Bloc Air Forces including Naval Air Forces are shown in Tables C-1, C-2, and C-3.

Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1950
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
USSR								
Soviet Air Force	22,805	251,154	0	100,670	41,467	6,972	5,721	428,789
Soviet Naval Aviation	0	76,233	0	0	8,368	1,407	1,541	87,549
Training	23,694	91,545	29,122	52,733	19,794	0	2,438	219,326
Civil Aviation	0	102,073	293,721	0	0	0	6,447	402,241
MAP Aircraft (testing)	15,998	1,550	699	92,768	0	0	449	111,464
Total	62,497	522,555	323,542	246,171	69,629	8,379	16,596	1,249,369
Austria								
Soviet Air Force	0	11,355	0	0	1,249	210	230	13,044
East Germany								
Soviet Air Force	0	17,214	0	29,534	4,371	735	401	52,255
Soviet Naval Aviation	0	539	0	0	125	21	11	696
Total	0	17,753	0	29,534	4,496	756	412	52,951
Hungary								
Soviet Air Force	0	1,078	0	0	249	42	22	1,391
Poland								
Soviet Air Force	0	4,804	0	1,688	1,124	189	100	7,905
Soviet Naval Aviation	0	958	0	0	250	42	19	1,269
Total	0	5,762	0	1,688	1,374	231	119	9,174

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1950
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
Rumania								
Soviet Air Force	0	3,839	0	0	625	105	78	4,647
China								
Soviet Air Force	0	0	0	0	0	0	0	0
Total Soviet Units Outside USSR	0	39,787	0	31,222	7,993	1,344	861	81,207
Total Soviet Air Forces	62,497	562,342	323,542	277,393	77,622	9,723	17,457	1,330,576

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Force
1951
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
USSR								
Soviet Air Force	89,592	262,256	0	199,658	42,715	7,182	7,477	608,880
Soviet Naval Aviation	0	83,276	0	5,907	8,743	1,470	1,693	101,089
Training	23,694	87,486	30,126	118,234	18,167	0	2,496	280,203
Civil Aviation	0	102,172	293,953	0	0	0	6,453	402,578
MAP Aircraft (testing)	16,694	1,702	1,042	149,921	0	0	563	169,922
Total	129,980	536,892	325,121	473,720	69,625	8,652	18,682	1,562,672
Austria								
Soviet Air Force	0	13,326	0	0	1,249	210	269	15,054
East Germany								
Soviet Air Force	0	14,136	0	68,603	4,371	735	411	88,256
Soviet Naval Aviation	0	-	0	2,953	125	21	5	3,104
Total	0	14,136	0	71,556	4,496	756	416	91,360
Hungary								
Soviet Air Force	0	1,348	0	0	249	42	27	1,666

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1951
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
Poland								
Soviet Air Force	0	4,980	0	4,219	1,124	189	108	10,620
Soviet Naval Aviation	0	1,198	0	0	250	42	24	1,514
Total	0	6,178	0	4,219	1,374	231	132	12,134
Rumania								
Soviet Air Force	0	3,722	0	2,953	625	105	80	7,485
China								
Soviet Air Force	0		0	0	0	0	0	0
Total Soviet Units Outside USSR	0	38,710	0	78,728	7,993	1,344	924	127,699
Total Soviet Air Forces	129,980	575,602	325,121	552,448	77,618	9,996	19,606	1,690,371

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1952
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
USSR								
Soviet Air Force	165,208	310,215	0	319,464	46,088	7,749	10,190	858,914
Soviet Naval Aviation	0	73,056	0	104,740	10,242	1,722	1,667	191,427
Training	23,694	83,393	26,557	185,400	15,952	0	2,481	337,477
Civil Aviation	0	102,271	302,119	0	0	0	6,587	410,977
MAP Aircraft (testing)	16,425	1,672	1,002	150,613	0	0	558	170,270
Total	205,327	570,607	329,678	760,217	72,282	9,471	21,483	1,969,065
Austria								
Soviet Air Force	0	8,405	0	14,050	1,124	189	196	23,964
East Germany								
Soviet Air Force	0	13,309	0	104,549	4,371	735	460	123,424
Soviet Naval Aviation	0	0	0	3,544	125	21	6	3,696
Total	0	13,309	0	108,093	4,496	756	466	127,120
Hungary								
Soviet Air Force	0	1,610	0	14,385	625	105	59	16,784

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1952
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
Poland								
Soviet Air Force	0	4,895	0	7,595	1,124	189	112	13,915
Soviet Naval Aviation	0	1,437	0	0	250	42	29	1,758
Total	0	6,332	0	7,595	1,374	231	141	15,673
Rumania								
Soviet Air Force	0	2,774	0	10,506	625	105	75	14,085
China								
Soviet Air Force	0	3,993	0	50,630	1,624	273	173	56,693
Total Soviet Units Outside USSR	0	36,423	0	205,259	9,868	1,659	1,110	254,319
Total Soviet Air Forces	205,327	607,030	329,678	965,476	82,150	11,130	22,593	2,223,384

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1953
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
USSR								
Soviet Air Force	183,746	245,283	0	815,962	48,461	8,148	10,161	1,311,761
Soviet Naval Aviation	0	56,946	0	237,275	11,616	1,953	1,583	309,373
Training	41,465	140,021	40,995	291,422	17,958	0	4,102	535,963
Civil Aviation	0	394,203	75,391	0	0	0	7,649	477,243
MAP Aircraft (testing)	4,951	345	1,070	161,760	0	0	368	168,494
Total	230,162	836,798	117,456	1,506,419	78,035	10,101	23,863	2,802,834
Austria								
Soviet Air Force	0	666	0	23,627	749	126	56	25,224
East Germany								
Soviet Air Force	0	10,894	0	120,078	4,496	756	439	136,663
Soviet Naval Aviation	0	0	0	4,430	125	21	8	4,584
Total	0	10,894	0	124,508	4,621	777	447	141,247
Hungary								
Soviet Air Force	0	7,510	0	21,133	1,124	189	190	30,146

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1953
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
Poland								
Soviet Air Force	0	4,256	0	11,814	999	168	107	17,344
Soviet Naval Aviation	0	1,677	0	0	250	42	34	2,003
Total	0	5,933	0	11,814	1,249	210	141	19,347
Rumania								
Soviet Air Force	0	2,982	0	13,143	624	105	85	16,939
China								
Soviet Air Force	0	4,412	0	62,760	1,874	315	204	69,565
Total Soviet Units Outside USSR	0	32,397	0	256,985	10,241	1,722	1,123	302,468
Total Soviet Air Forces	230,162	869,195	117,456	1,763,404	88,276	11,823	24,986	3,105,302

Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1954
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
USSR								
Soviet Air Force	224,795	176,380	0	1,254,241	51,958	8,736	10,396	1,726,506
Soviet Naval Aviation	0	36,916	0	345,705	11,990	2,016	1,375	398,002
Training	59,234	144,522	42,803	291,422	16,139	0	4,494	558,614
Civil Aviation	0	404,852	75,391	0	0	0	7,823	488,066
MAP Aircraft (testing)	0	0	1,158	166,492	0	0	292	167,942
Total	284,029	762,670	119,352	2,057,860	80,087	10,752	24,380	3,339,130
Austria								
Soviet Air Force	0	799	0	23,627	749	126	59	25,360
East Germany								
Soviet Air Force	0	11,444	0	81,219	3,622	609	379	97,273
Soviet Naval Aviation	0	0	0	4,430	125	21	8	4,584
Total	0	11,444	0	85,649	3,747	630	387	101,857
Hungary								
Soviet Air Force	0	0	0	31,744	749	126	58	32,677

Approved For Release 2000/08/29 : CIA-RDP79S01100A000200160001-1

Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1954
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
Poland								
Soviet Air Force	0	3,354	0	23,728	1,124	189	111	28,506
Soviet Naval Aviation	0	1,677	0	0	250	42	33	2,002
Total	0	5,031	0	23,728	1,374	231	144	30,508
Rumania								
Soviet Air Force	0	3,398	0	13,143	625	105	93	17,364
China								
Soviet Air Force	0	7,607	0	35,441	1,374	231	218	44,871
Total Soviet Units Outside USSR	0	28,279	0	213,332	8,618	1,449	959	252,637
Total Soviet Air Forces	284,029	790,949	119,352	2,271,192	88,705	12,201	25,339	3,591,767

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1955
(Metric Tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
USSR								
Soviet Air Force	200,361	151,379	0	1,479,897	50,335	8,463	9,812	1,900,247
Soviet Naval Aviation	0	24,462	0	437,530	12,864	2,163	1,292	478,311
Training	77,005	158,100	48,828	291,422	15,534	0	5,103	595,992
Civil Aviation	8,872	434,279	79,358	13,317	0	0	8,533	544,359
MAP Aircraft (testing)	0	0	1,006	225,971	0	0	387	227,364
Total	286,238	768,220	129,192	2,448,137	78,733	10,626	25,127	3,746,273
Austria								
Soviet Air Force	0	799	0	23,627	749	126	59	25,360
East Germany								
Soviet Air Force	0	9,749	0	132,429	4,372	735	439	147,724
Soviet Naval Aviation	0	0	0	4,578	125	21	8	4,732
Total	0	9,749	0	137,007	4,497	756	447	152,456
Hungary								
Soviet Air Force	0	0	0	31,744	749	126	58	32,677

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Table C-1

Estimated Annual Consumption of Petroleum Products Soviet Air Forces
1955
(Metric tons)

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
Poland								
Soviet Air Force	0	3,354	0	25,094	1,124	189	113	29,874
Soviet Naval Aviation	0	1,677	0	0	250	42	34	2,003
Total	0	5,031	0	25,094	1,374	231	147	31,877
Rumania								
Soviet Air Force	0	719	0	13,881	375	63	40	15,078
China								
Soviet Air Force	0		0	0	0	0	0	0
Total Soviet Units Outside USSR	0	16,298	0	231,353	7,744	1,302	751	257,448
Total Soviet Air Forces	286,238	784,518	129,192	2,679,490	86,477	11,928	25,878	4,003,721

Approved For Release 2000/08/29 : CIA-RDP79S01100A000200160001-1

Table C-2

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
EUROPEAN SATELLITE AIR FORCES - 1950

Metric Tons

Location of Units	Aviation Gasoline Grade 100	Aviation Gasoline Grade 95	Aviation Gasoline Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
Albania								
Air Force	0	0	0	0	0	0	0	0
Bulgaria								
Air Force	0	2393	0	0	375	63	49	2880
Training	0	1873	426	0	345	0	37	2681
Civil Aviation	0	571	1334	0	0	0	31	1936
Total	0	4837	1760	0	720	63	117	7497
Czechoslovakia								
Air Force	0	6627	0	0	999	168	133	7927
Training	0	2095	1370	0	502	0	56	4023
Civil Aviation	0	2920	6814	0	0	0	157	9891
MAP Aircraft (testing)	0	0	0	0	0	0	0	0
Total	0	11642	8184	0	1501	168	346	21841
East Germany								
Air Force	0	0	0	0	0	0	0	0
Hungary								
Air Force	0	750	0	0	250	42	15	1057
Training	0	1098	1343	0	366	0	40	2847
Civil Aviation	0	635	1481	0	0	0	34	2150
Total	0	2483	2824	0	616	42	89	6054
Poland								
Air Force	0	6065	0	0	1124	189	122	7500
Naval Aviation	0	0	0	0	0	0	0	0
Training	0	2346	2107	0	670	0	72	5195
Civil Aviation	0	1270	2963	0	0	0	69	4302
MAP Aircraft (testing)	0	0	0	0	0	0	0	0
Total	0	9681	5070	0	1794	189	263	16997
Rumania								
Air Force	0	6540	0	0	874	147	132	7693
Training	0	1397	702	0	273	0	33	2405
Civil Aviation	0	1397	3259	0	0	0	76	4732
Total	0	9334	3961	0	1147	147	241	14830
Total European Satellites	0	37977	21799	0	5778	609	1056	67219

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Table C-2

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS

EUROPEAN SATELLITE AIR FORCES - 1951

Metric Tons

Location of Units	Aviation Gasoline Grade 100	Aviation Gasoline Grade 95	Aviation Gasoline Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
Albania								
Air Force	0	0	0	0	0	0	0	0
Bulgaria								
Air Force	0	12151	0	1055	1499	252	247	15204
Training	0	2811	453	0	392	0	53	3709
Civil Aviation	0	699	1630	0	0	0	37	2366
Total	0	15661	2083	1055	1891	252	337	21279
Czechoslovakia								
Air Force	0	10530	0	2953	1499	252	218	15452
Training	0	1987	1416	0	480	0	55	3938
Civil Aviation	0	2920	6814	0	0	0	157	9891
MAP Aircraft (testing)	0	0	0	0	0	0	0	0
Total	0	15437	8230	2953	1979	252	430	29281
East Germany								
Air Force	0	0	0	0	0	0	0	0
Hungary								
Air Force	0	5250	0	0	874	147	107	6378
Training	0	1287	1377	0	400	0	43	3107
Civil Aviation	0	635	1481	0	0	0	34	2150
Total	0	7172	2858	0	1274	147	184	11635
Poland								
Air Force	0	12176	0	4325	1998	336	253	19088
Naval Aviation	0	299	0	0	130	21	6	456
Training	0	2811	2445	0	788	0	85	6129
Civil Aviation	0	1270	2963	0	0	0	69	4302
MAP Aircraft (testing)	0	0	0	0	0	0	0	0
Total	0	16556	5408	4325	2916	357	413	29975
Rumania								
Air Force	0	8306	0	1582	1124	189	170	11371
Training	0	1397	722	0	275	0	34	2428
Civil Aviation	0	1397	3259	0	0	0	76	4732
Total	0	11100	3981	1582	1399	189	280	18531
Total European Satellites	0	65926	22560	9915	9459	1197	1644	110701

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Table C-2

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
EUROPEAN SATELLITE AIR FORCES - 1952

Metric Tons

Location of Units	Aviation Gasoline Grade 100	Aviation Gasoline Grade 95	Aviation Gasoline Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
Albania								
Air Force	0	180	0	0	0	0	4	184
Bulgaria								
Air Force	0	8570	0	8860	2123	357	189	20099
Training	0	2811	621	0	419	0	55	3906
Civil Aviation	0	825	1925	0	0	0	45	2795
Total	0	12206	2546	8860	2542	357	289	26800
Czechoslovakia								
Air Force	0	8629	0	10126	1499	252	192	20698
Training	0	2895	2140	0	409	0	82	5526
Civil Aviation	0	2412	5629	0	0	0	131	8172
MAP Aircraft (testing)	0	141	-	491	0	0	3	635
Total	0	14077	7769	10617	1908	252	408	35031
East Germany								
Air Force	0	0	0	0	0	0	0	0
Hungary								
Air Force	0	5643	0	5063	999	168	124	11997
Training	0	1796	1554	0	302	0	54	3706
Civil Aviation	0	635	1481	0	0	0	34	2150
Total	0	8074	3035	5063	1301	168	212	17853
Poland								
Air Force	0	7667	0	10126	1998	336	173	20300
Naval Aviation	0	359	0	0	125	21	7	512
Training	0	5224	3061	0	829	0	134	9248
Civil Aviation	0	1270	2963	0	0	0	69	4302
MAP Aircraft (testing)	0	0	0	70	0	0	0	70
Total	0	14520	6024	10196	2952	357	383	34432
Rumania								
Air Force	0	4640	0	7595	1499	252	106	14092
Training	0	1397	1102	0	249	0	41	2789
Civil Aviation	0	3174	0	0	0	0	52	3226
Total	0	9211	1102	7595	1748	252	199	20107
Total European Satellites	0	56046	22698	42331	10451	1386	1495	134407

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Table C-2

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
EUROPEAN SATELLITE AIR FORCES - 1953

Metric Tons

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
Albania								
Air Force	0	210	0	0	125	21	4	360
Bulgaria								
Air Force	0	11175	0	17721	1998	336	257	31487
Training	0	3278	985	0	294	0	70	4627
Civil Aviation	0	2116	0	0	0	0	34	2150
Total	0	16569	985	17721	2292	336	361	38264
Czechoslovakia								
Air Force	0	9768	0	31011	2248	378	254	43659
Training	0	3694	2961	0	333	0	108	7096
Civil Aviation	0	8041	0	0	0	0	131	8172
MAP Aircraft (testing)	0	1154	0	10109	0	0	36	11299
Total	0	22657	2961	41120	2581	378	529	70226
East Germany								
Air Force	0	1258	0	0	125	21	25	1429
Hungary								
Air Force	0	5784	0	17721	1124	189	149	24967
Training	0	2335	1554	0	187	0	63	4139
Civil Aviation	0	2116	0	0	0	0	34	2150
Total	0	10235	1554	17721	1311	189	246	31256
Poland								
Air Force	0	13257	0	40238	3372	567	341	57775
Naval Aviation	0	0	0	2953	125	21	5	3104
Training	0	5814	3211	0	542	0	147	9714
Civil Aviation	0	4233	0	0	0	0	69	4302
MAP Aircraft (testing)	0	0	0	982	0	0	2	984
Total	0	23304	3211	44173	4039	588	564	75879
Rumania								
Air Force	0	6266	0	16244	1499	252	157	24418
Training	0	1397	1589	0	179	0	48	3213
Civil Aviation	0	3174	0	0	0	0	52	3226
Total	0	10837	1589	16244	1678	252	257	30857
Total European Satellites	0	85070	10300	136979	12151	1785	1986	248271

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Table C-2

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
EUROPEAN SATELLITE AIR FORCES - 1954

Metric Tons

Location of Units	Aviation Gasoline Grade 100	Aviation Gasoline Grade 95	Aviation Gasoline Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
Albania								
Air Force	0	210	0	0	0	21	4	235
Bulgaria								
Air Force	0	10845	0	17721	2248	378	251	31443
Training	0	5258	1136	0	448	0	104	6946
Civil Aviation	0	1905	0	0	0	0	31	1936
Total	0	18008	1136	17721	2696	378	386	40325
Czechoslovakia								
Air Force	0	9328	0	48731	2498	420	277	61254
Training	0	4392	3475	0	393	0	128	8388
Civil Aviation	0	8041	0	0	0	0	131	8172
MAP Aircraft (testing)	0	875	0	14086	0	0	37	14998
Total	0	22636	3475	62817	2891	420	573	92812
East Germany								
Air Force	0	1887	0	0	375	63	38	2363
Hungary								
Air Force	0	6609	0	29534	1499	252	187	38081
Training	0	1897	1754	0	183	0	59	3893
Civil Aviation	0	2116	0	0	0	0	34	2150
Total	0	10622	1754	29534	1682	252	280	44124
Poland								
Air Force	0	12144	0	55834	3622	609	347	72556
Naval Aviation	0	0	0	2953	125	21	5	3104
Training	0	7021	3711	1054	589	0	177	12552
Civil Aviation	0	4233	0	0	0	0	69	4302
MAP Aircraft (testing)	0	0	0	4984	0	0	8	4992
Total	0	23398	3711	64825	4336	630	606	97506
Rumania								
Air Force	0	6629	0	23627	1624	273	176	32329
Training	0	1397	1403	0	140	0	45	2985
Civil Aviation	0	3174	0	0	0	0	52	3226
Total	0	11200	1403	23627	1764	273	273	38540
Total European Satellites	0	87961	11479	198524	13744	2037	2160	315905

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Table C-2

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
EUROPEAN SATELLITE AIR FORCES - 1955

Metric Tons

Location of Units	Aviation Gasoline Grade 100	Aviation Gasoline Grade 95	Aviation Gasoline Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
Albania								
Air Force	0	210	0	0	125	21	4	360
Bulgaria								
Air Force	0	11124	0	22151	2248	378	265	36166
Training	0	4608	1436	0	302	0	99	6445
Civil Aviation	0	1905	0	0	0	0	31	1936
Total	0	17637	1436	22151	2550	378	395	44547
Czechoslovakia								
Air Force	0	9328	0	55377	2748	462	289	68204
Training	0	6483	2943	4218	682	0	159	14485
Civil Aviation	0	8041	0	0	0	0	131	8172
MAP Aircraft (testing)	0	0	0	14086	0	0	23	14109
Total	0	23852	2943	73681	3430	462	602	104970
East Germany								
Air Force	0	1887	0	0	375	63	38	2363
Hungary								
Air Force	0	6609	0	29534	1499	0	187	37829
Training	0	2176	2005	0	209	252	68	4710
Civil Aviation	0	2116	0	0	0	0	34	2150
Total	0	10901	2005	29534	1708	252	289	44689
Poland								
Air Force	0	25605	0	48731	3622	609	288	78855
Naval Aviation	0	0	0	2953	125	21	5	3104
Training	0	6076	3540	2109	586	0	160	12471
Civil Aviation	0	4233	0	0	0	0	69	4302
MAP Aircraft (testing)	0	0	0	4984	0	0	8	4992
Total		35914	3540	58777	4333	630	530	103724
Rumania								
Air Force	0	7188	0	25842	1499	252	191	34972
Training	0	1397	1403	0	140	0	45	2985
Civil Aviation	0	3174	0	0	0	0	52	3226
Total	0	11759	1403	25842	1639	252	288	41183
Total European Satellites	0	102160	11327	209985	14160	2058	2146	341836

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Table C-3
ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
COMMUNIST CHINA AND ASIATIC SATELLITE AIR FORCES - 1950

Metric Tons

Location of Units	Aviation Gasoline: Grade 100	Aviation Gasoline: Grade 95	Aviation Gasoline: Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
China								
Air Force	0	2903	0	0	500	84	59	3546
Naval Aviation	0	0	0	0	0	0	0	0
Training	0	0	0	0	0	0	0	0
Civil Aviation	0	2857	7062	0	0	0	154	10073
Total	0	5760	7062	0	500	84	213	13619
North Korea								
Air Force	0	0	0	0	0	0	0	0
Training	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Total Communist China and Asiatic Satellites	0	5760	7062	0	500	84	213	13619

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Table C-3

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
COMMUNIST CHINA AND ASIATIC SATELLITE AIR FORCES - 1951

Metric Tons

Location of Units	Aviation Gasoline							
	Grade 100	Grade 95	Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
China								
Air Force	0	17568	0	74152	5496	924	490	98630
Naval Aviation	0	0	0	0	0	0	0	0
Training	0	0	724	0	109	0	11	844
Civil Aviation	0	3809	9284	0	0	0	213	13306
Total	0	21377	10008	74152	5605	924	714	112780
North Korea								
Air Force	0	0	0	0	0	0	0	0
Training	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Total Communist China and Asiatic Satellites	0	21377	10008	74152	5605	924	714	112780

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Table C-3

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
COMMUNIST CHINA AND ASIATIC SATELLITE AIR FORCES - 1952

	Aviation Gasoline							Metric Tons
Location of Units	Grade 100	Grade 95	Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
China								
Air Force	0	33171	0	94931	6370	1071	843	136386
Naval Aviation	0	0	0	0	0	0	0	0
Training	0	0	1672	0	83	0	27	1782
Civil Aviation	0	3809	9284	0	0	0	213	13306
Total	0	36980	10956	94931	6453	1071	1083	151474
North Korea								
Air Force	0	0	0	0	0	0	0	0
Training	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
Total Communist China and Asiatic Satellites	0	36980	10956	94931	6453	1071	1083	151474

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Table C-3

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
COMMUNIST CHINA AND ASIATIC SATELLITE AIR FORCES - 1953

Metric Tons

Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
China								
Air Force	1955	28961	0	131977	6619	1113	865	171490
Naval Aviation	0	0	0	0	0	0	0	0
Training	0	7500	1672	25312	1724	0	192	36400
Civil Aviation	0	12697	396	0	0	0	213	13306
Total	1955	49158	2068	157289	8343	1113	1270	221196
North Korea								
Air Force	0	0	0	31378	874	147	57	32456
Training	0	698	268	2531	175	0	20	3692
Total	0	698	268	33909	1049	147	77	36148
Total Communist China and Asiatic Satellites	1955	49856	2336	191198	9392	1260	1347	257344

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Table C-3

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
COMMUNIST CHINA AND ASIATIC SATELLITE AIR FORCES - 1954

	Aviation Gasoline							Metric Tons
Location of Units	Grade 100	Grade 95	Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
China								
Air Force	1955	27200	0	131050	6618	1113	828	168764
Naval Aviation	0	2293	0	2307	500	84	50	5234
Training	0	8977	2876	22780	1722	0	230	36585
Civil Aviation	0	8465	396	0	0	0	144	9005
Total	1955	46935	3272	156137	8840	1197	1252	219588
North Korea								
Air Force	0	2921	0	32854	1249	210	119	37353
Training	0	1098	268	2531	195	0	27	4119
Total	0	4019	268	35385	1444	210	146	41472
Total Communist China and Asiatic Satellites	1955	50954	3540	191522	10284	1407	1398	261060

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Table C-3

ESTIMATED ANNUAL CONSUMPTION OF PETROLEUM PRODUCTS
COMMUNIST CHINA AND ASIATIC SATELLITE AIR FORCES - 1955

Metric Tons

Location of Units	Aviation Gasoline Grade 100	Aviation Gasoline Grade 95	Aviation Gasoline Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
China								
Air Force	1955	28773	0	138433	6745	1134	874	177914
Naval Aviation	0	3576	0	6920	500	84	85	11165
Training	0	9505	2876	24257	1832	0	241	38711
Civil Aviation	0	8465	396	0	0	0	144	9005
Total	1955	50319	3272	169610	9077	1218	1344	236795
North Korea								
Air Force	0	3201	0	36637	1374	231	132	41575
Training	0	1407	268	3163	242	0	32	5112
Total	0	4608	268	39800	1616	231	164	46687
Total Communist China and Asiatic Satellites	1955	54927	3540	209410	10693	1449	1508	283482

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